

*Concluded
A1* { **REWRITE CLAIM 3 AS:**

3. (Once amended) The apparatus of claim 2, wherein the GRIN lens has pitch length of about one or more.

UNCHANGED CLAIM 4:

4. The apparatus of claim 1, wherein the GRIN lens further comprises:
a relay GRIN lens; and
an objective GRIN lens being serially coupled to the relay GRIN lens; and
wherein the objective GRIN lens has a shorter pitch than the relay GRIN lens.

UNCHANGED CLAIM 5:

5. The apparatus of claim 4, wherein the relay GRIN lens is coupled to receive light from the first optical aperture and transmit the received light to the objective GRIN lens.

UNCHANGED CLAIM 6:

6. The apparatus of claim 4, wherein the pitch of the objective GRIN lens is at least five times shorter than the pitch of the relay GRIN lens.

REWRITE CLAIM 7 AS:

7. (Once amended) The apparatus of claim 1, wherein the GRIN lens further comprises:

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a relay GRIN lens; and
an objective GRIN lens being serially coupled to one end of the relay GRIN lens; and
a coupling GRIN lens being serially coupled to an opposite end of the relay GRIN lens as the objective GRIN lens; and
wherein the objective GRIN lens and the coupling GRIN lens have shorter pitches than the relay GRIN lens.

{REWRITE CLAIM 8 AS}

8. (Once amended) The apparatus of claim 7, further comprising:
a pulsed laser; and
wherein the GRIN lens and optical element are configured to deliver source light from the pulsed laser to the sample without the source light propagating in single mode optical fiber.

UNCHANGED CLAIM 9:

9. The apparatus of claim 1, further comprising:
a pulsed light source coupled to transmit light pulses to the optical element; and
wherein the detector is configured to measure a quantity indicative of an intensity of the light emitted from the first end.

UNCHANGED CLAIM 10:

10. The apparatus of claim 9, wherein the detector is configured to measure a characteristic of light whose wavelength is shorter than a wavelength of the light produced by the source.

UNCHANGED CLAIM 11:

11. The apparatus of claim 1, further comprising:
a processor configured to produce a scan image from the measured values and estimated positions of the multi-photon absorption events.

UNCHANGED CLAIM 12:

12. The apparatus of claim 1, wherein the GRIN lens forms an endoscopic probe.

{REWRITE CLAIM 13 AS}

13. (Once amended) A process for scanning a region of a sample with a probe having a GRIN lens with first and second end faces, comprising:
positioning the first end face of the GRIN lens near the region of the sample;

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transmitting light to the second end face of the GRIN lens, the length of the GRIN lens being at least about as long as the length of the probe; and

scanning one of an incidence position and an incidence angle of the light on the second end face of the GRIN lens while performing the transmitting to generate a scan of the region of the sample.

UNCHANGED CLAIM 14:

14. The process of claim 13, further comprising:

receiving light emitted by the region of the sample in response to the scanning;

and

measuring values of a quantity indicative of an intensity or a phase of the emitted light in response to the receiving.

UNCHANGED CLAIM 15:

15. The process of claim 14, further comprising:

forming an image of the region of the sample from the measure values and positions of portions of the sample that produced the emitted light.

UNCHANGED CLAIM 16:

16. The process of claim 14, wherein the receiving comprises collecting the emitted light through the first end face of the GRIN lens.

UNCHANGED CLAIM 17:

17. The process of claim 14, wherein the quantity is indicative of the intensity of the emitted light.

UNCHANGED CLAIM 18:

18. The process of claim 14, wherein the transmitting comprises sending a series of pulses of laser light to the second end face.